AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 12. (canceled).

13. (currently amended): A method of measuring the quality and/or the degradation of a food oil, said method comprising the steps of:

immersing a sensor in said oil to be measured, said sensor comprising at least one pair of electrodes spaced apart from each other and extending in substantially the same plane, each electrode of each pair of electrodes further having the shape of a comb having a plurality of substantially parallel teeth, the teeth of one of the electrodes being interdigited with the teeth of the other electrode, the electrodes and said oil forming a measuring capacitive element whose capacitance varies as a function of the dielectric constant of the oil, said sensor providing an electrical output signal representative of said dielectric constant;

receiving said output signal and determining the degree of quality and/or degradation of said oil on the basis of said output signal; ~~and~~

immersing both sides of the electrodes in the oil, on either side of said plane, such that said oil can flow passing through said ~~plane.~~plane, and

selecting a gap between adjacent ones of said teeth to be between 10nm and 1mm.

14. (previously presented): The method according to claim 13, further comprising the step of providing the sensor with a reference capacitive element comprising at least one pair of

reference electrodes spaced apart from one another, said reference capacitive element being intended to be immersed in a reference oil, the reference electrodes and the reference fluid forming a reference capacitive element whose capacitance varies as a function of the dielectric constant of the reference oil, said reference capacitive element being capable of providing a reference signal representative of said reference dielectric constant to said processing means, and wherein the processing means are arranged for comparing the output signal to the reference signal.

15. (previously presented): The method according to claim 14, wherein the electrodes of said reference capacitive element extend in substantially the same plane and wherein both sides of the electrodes of said reference capacitive device are immersed in said reference oil, on either side of their plane, such that said reference oil can flow passing through said plane.

16. (previously presented): The method according to claim 14, wherein the reference fluid is arranged in an enclosed space insulated from said oil to be measured and in thermal contact with the latter, such that the reference oil has substantially the same temperature as said oil to be measured.

17. (previously presented): The method according to claim 16, wherein the enclosed space containing the reference oil is associated with a system for renewing said reference oil.

18. (currently amended): ~~The method according to claim 17~~ A method of measuring the quality and/or the degradation of a food oil, said method comprising the steps of:

immersing a sensor in said oil to be measured, said sensor comprising at least one pair of electrodes spaced apart from each other and extending in substantially the same plane, each

electrode of each pair of electrodes further having the shape of a comb having a plurality of substantially parallel teeth, the teeth of one of the electrodes being interdigited with the teeth of the other electrode, the electrodes and said oil forming a measuring capacitive element whose capacitance varies as a function of the dielectric constant of the oil, said sensor providing an electrical output signal representative of said dielectric constant;

receiving said output signal and determining the degree of quality and/or degradation of said oil on the basis of said output signal;

immersing both sides of the electrodes in the oil, on either side of said plane, such that said oil can flow passing through said plane,

said method further comprising the step of providing the sensor with a reference capacitive element comprising at least one pair of reference electrodes spaced apart from one another, said reference capacitive element being intended to be immersed in a reference oil, the reference electrodes and the reference fluid forming a reference capacitive element whose capacitance varies as a function of the dielectric constant of the reference oil, said reference capacitive element being capable of providing a reference signal representative of said reference dielectric constant to said processing means, and wherein the processing means are arranged for comparing the output signal to the reference signal,

wherein the reference fluid is arranged in an enclosed space insulated from said oil to be measured and in thermal contact with the latter, such that the reference oil has substantially the same temperature as said oil to be measured,

wherein the enclosed space containing the reference oil is associated with a system for renewing said reference oil, and

wherein said renewal system comprises a reference oil tank in communication with said enclosed space and wherein said system comprises flow control means so as to allow regular renewal of the reference oil contained in said enclosed space.

19. (previously presented): The method according to claim 13, wherein the electrodes are respectively formed by flat plates.

20. (previously presented): The method according to claim 13, wherein the capacitive elements are surrounded by a metal frame forming a screen against electromagnetic interference.

21. (previously presented): The method according to claim 13, wherein the electrodes of the capacitive elements are made from a food grade steel.

22. (previously presented): The method according to claim 13, wherein the electrodes of the capacitive elements are carried by an electrically insulating support structure having an aperture opposite a measuring region of said electrodes.

23. (currently amended): Cooking apparatus including a vat for containing a cooking fluid and heating means, wherein it further includes a device for measuring the quality and/or degradation of said cooking fluid, said measuring device including a sensor having at least one pair of electrodes spaced apart from each other and extending in substantially the same plane, each electrode of each pair of electrodes further having the shape of a comb having a plurality of substantially parallel teeth, the teeth of one of the electrodes being interdigited with the teeth of the other electrode, the electrodes and said cooking fluid forming a measuring capacitive element

whose capacitance varies as a function of the dielectric constant of the fluid, said sensor being capable of providing an electrical output signal representative of said dielectric constant, and processing means for receiving said output signal and determining the degree of quality and/or degradation of said cooking fluid on the basis of said output signal,

the measuring capacitive element being arranged in said vat such that both sides of its electrodes are immersed in the cooking fluid on either side of said plane of the electrodes so that said cooking fluid can flow passing through said ~~plane.~~plane,

wherein adjacent ones of said teeth are separated by an air gap of between 10nm and 1mm.

24. (previously presented): Cooking apparatus according to claim 23, wherein the sensor further includes a reference capacitive element, including at least one pair of electrodes spaced apart from each other to be immersed in a reference fluid, the electrodes and the reference fluid forming a measuring capacitive element whose capacitance varies as a function of the dielectric constant of the reference fluid, said sensor being capable of providing an electrical output signal representative of said reference dielectric constant to said processing means and wherein the processing means are arranged for comparing the output signal to the reference signal.

25. (previously presented): Cooking apparatus according to claim 24, wherein the electrodes of said reference capacitive element extend in substantially the same plane and wherein the both sides of the reference capacitive element electrodes are immersed in said cooking fluid on either side of said plane of the reference electrodes.

26. (previously presented): Cooking apparatus according to claim 24, wherein the reference fluid is arranged in an enclosed space insulated from the cooking fluid to be measured and in thermal contact with the latter, such that the reference fluid has substantially the same temperature as the cooking fluid to be measured.

27. (previously presented): Cooking apparatus according to claim 26, wherein the enclosed space containing the reference fluid is associated with a system for renewing said reference fluid.

28. (currently amended): ~~Cooking apparatus according to claim 27,~~ Cooking apparatus including a vat for containing a cooking fluid and heating means, wherein it further includes a device for measuring the quality and/or degradation of said cooking fluid, said measuring device including a sensor having at least one pair of electrodes spaced apart from each other and extending in substantially the same plane, each electrode of each pair of electrodes further having the shape of a comb having a plurality of substantially parallel teeth, the teeth of one of the electrodes being interdigited with the teeth of the other electrode, the electrodes and said cooking fluid forming a measuring capacitive element whose capacitance varies as a function of the dielectric constant of the fluid, said sensor being capable of providing an electrical output signal representative of said dielectric constant, and processing means for receiving said output signal and determining the degree of quality and/or degradation of said cooking fluid on the basis of said output signal,

the measuring capacitive element being arranged in said vat such that both sides of its electrodes are immersed in the cooking fluid on either side of said plane of the electrodes so that said cooking fluid can flow passing through said plane,

wherein the sensor further includes a reference capacitive element, including at least one pair of electrodes spaced apart from each other to be immersed in a reference fluid, the electrodes and the reference fluid forming a measuring capacitive element whose capacitance varies as a function of the dielectric constant of the reference fluid, said sensor being capable of providing an electrical output signal representative of said reference dielectric constant to said processing means and wherein the processing means are arranged for comparing the output signal to the reference signal,

wherein the reference fluid is arranged in an enclosed space insulated from the cooking fluid to be measured and in thermal contact with the latter, such that the reference fluid has substantially the same temperature as the cooking fluid to be measured,

wherein the enclosed space containing the reference fluid is associated with a system for renewing said reference fluid, and

wherein said renewal system includes a reference fluid tank in communication with said enclosed space and wherein said system includes flow control means to allow regular renewal of the reference fluid contained in said enclosed space.

29. (previously presented): Cooking apparatus according to claim 23, wherein the electrodes are respectively formed by flat plates.

30. (previously presented): Cooking apparatus according to claim 23, wherein the capacitive elements are surrounded by a metal frame forming a screen against electromagnetic interference.

31. (previously presented): Cooking apparatus according to claim 23, wherein the electrodes of the capacitive elements are made from a food grade steel.

32. (previously presented): Cooking apparatus according to claim 23, wherein the electrodes of the capacitive elements are carried by an electrically insulating support structure having an aperture arranged facing a measuring region of said electrodes.